2019 - 2020 Major Map
Applied Mathematics, BS

School/College: New College of Interdisciplinary Arts and Sciences
Location: West campus

### Term 1  - 14 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACO 101: Introduction to Computer Science (CS)</td>
<td>3</td>
<td>C</td>
<td>• An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses.</td>
</tr>
<tr>
<td>MAT 270: Calculus with Analytic Geometry I (MA)</td>
<td>4</td>
<td>C</td>
<td>• Mathematics Placement Assessment score determines placement in mathematics course. Student may elect to take an MA course if needed to prepare for MAT 210 in term 2.</td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition</td>
<td>3</td>
<td>C</td>
<td>• ASU 101 or college-specific equivalent First-Year Seminar required of all freshman students. NEW 101 satisfies this requirement.</td>
</tr>
<tr>
<td>NEW 101: The ASU New College Experience</td>
<td>1</td>
<td></td>
<td>• IAS 300 (3 credit hours) is required for all transfer students in place of NEW 101.</td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU)</td>
<td>3</td>
<td></td>
<td>• Select your Career Interest Communities and play me3@ASU.</td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>14</strong></td>
<td></td>
<td>• Activate your Handshake account and build out your profile.</td>
</tr>
</tbody>
</table>

### Term 2  - 30 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACO 102: Object-Oriented Programing (CS)</td>
<td>3</td>
<td>C</td>
<td>• Create a first draft resume.</td>
</tr>
<tr>
<td>MAT 271: Calculus with Analytic Geometry II (MA)</td>
<td>4</td>
<td>C</td>
<td>• Join a student club or professional organization.</td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition</td>
<td>3</td>
<td>C</td>
<td>• Secure a part-time job or volunteer experience</td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Awareness (G)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Complete ENG 101 OR ENG 105 OR ENG 107 course(s).</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>16</strong></td>
<td></td>
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</tbody>
</table>

### Term 3  - 44 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 272: Calculus with Analytic Geometry III (MA)</td>
<td>4</td>
<td>C</td>
<td>• Develop your research skills.</td>
</tr>
<tr>
<td>STP 280: Probability and Statistics for Researchers (CS)</td>
<td>3</td>
<td>C</td>
<td>• Develop your professional skills.</td>
</tr>
<tr>
<td>Natural Science - Quantitative (SQ)</td>
<td>4</td>
<td></td>
<td>• Build your professional connections - join the ASU Mentor Network.</td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Complete First-Year Composition requirement.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Complete Mathematics (MA) requirement.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>14</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Term 4  - 60 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 275: Modern Differential Equations (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Hours</td>
<td>Grade</td>
<td>Notes</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>STP 281: Statistical Analysis for Researchers</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Cultural Diversity in the U.S. (C)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Science - General (SG) OR Natural Science - Quantitative (SQ)</td>
<td>4</td>
<td></td>
<td></td>
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</tbody>
</table>

**Term 5  60 - 75 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 300: Mathematical Structures (L)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MAT 343: Applied Linear Algebra</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Literacy and Critical Inquiry (L) OR IAS 300: Career Strategies and Personal Resilience (L or SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Complete 2 courses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 16

**Term 6  75 - 90 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 350: Techniques and Applications of Applied Mathematics</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MAT 371: Advanced Calculus I</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MAT 421: Applied Computational Methods (CS)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 15

**Term 7  90 - 105 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 452: Introduction to Chaos and Nonlinear Dynamics</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MAT 472: Intermediate Real Analysis I</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Applied Math Elective</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Humanities, Arts and Design (HU) AND Historical Awareness (H) or Upper Division Social-Behavioral Sciences (SB) AND Historical Awareness (H) ( MAT 411 recommended)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 15

**Term 8  105 - 120 Credit Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 450: Mathematical Models in Biology OR MAT 451: Mathematical Modeling (CS)</td>
<td>3</td>
<td>C</td>
<td>Apply for full-time career opportunities.</td>
</tr>
<tr>
<td>Upper Division Applied Math Elective</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Elective OR LSC 484: Internship</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 15

- Explore an internship, an IGLE international experience, or ASU study abroad.
- IAS 300 (3 credit hours) is required for all transfer students.
- Thinking about graduate school? Consider registering for a grad school test prep course.
- Develop your professional online presence.
- Use Handshake to research employment opportunities.
- Complete an in person or virtual practice interview.
- Gather professional references.
- Apply for full-time career opportunities.
• Maximum of 6 credit hours of MAT 499. If also taking MAT 492, then only 3 credit hours of MAT 499 allowed.

Hide Course List(s)/Track Group(s)

<table>
<thead>
<tr>
<th>Upper Division Applied Math Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACO 320: Database Systems</td>
</tr>
<tr>
<td>ACO 331: Network Design</td>
</tr>
<tr>
<td>ACO 420: Big Data Systems</td>
</tr>
<tr>
<td>ACO 421: Data Mining and Warehousing</td>
</tr>
<tr>
<td>ACO 422: XML and Databases</td>
</tr>
<tr>
<td>ACO 423: Data Science</td>
</tr>
<tr>
<td>LSC 388: Research Fundamentals for the</td>
</tr>
<tr>
<td>Natural Sciences (L)</td>
</tr>
<tr>
<td>MAT 419: Introduction to Linear Optimization (CS)</td>
</tr>
<tr>
<td>MAT 429: Optimization</td>
</tr>
<tr>
<td>MAT 443: Introduction to Abstract Algebra</td>
</tr>
<tr>
<td>MAT 445: Theory of Numbers or MAT 450: Mathematical Models in Biology</td>
</tr>
<tr>
<td>MAT 451: Mathematical Modeling (CS)</td>
</tr>
<tr>
<td>MAT 462: Applied Partial Differential Equations</td>
</tr>
<tr>
<td>MAT 492: Honors Directed Study</td>
</tr>
<tr>
<td>MAT 499: Individualized Instruction</td>
</tr>
<tr>
<td>STP 310: Design and Analysis of Experiments</td>
</tr>
<tr>
<td>STP 311: Regression and Time Series Analyses</td>
</tr>
<tr>
<td>STP 421: Probability</td>
</tr>
<tr>
<td>STP 427: Mathematical Statistics</td>
</tr>
</tbody>
</table>

Total Hours: 120
Upper Division Hours: 45 minimum
Major GPA: 2.00 minimum
Cumulative GPA: 2.00 minimum
Total hrs at ASU: 30 minimum
Hrs Resident Credit for Academic Recognition: 56 minimum
Total Community College Hrs: 64 maximum
Total College Residency Hrs: 12 minimum

General University Requirements Legend

General Studies Core Requirements:
• Literacy and Critical Inquiry (L)
• Mathematical Studies (MA)
• Computer/Statistics/Quantitative Applications (CS)
• Humanities, Arts and Design (HU)
• Social-Behavioral Sciences (SB)
• Natural Science - Quantitative (SQ)
• Natural Science - General (SG)
General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed on the major map are current for the 2019 - 2020 academic year.